

10019337-4

Confirmation No. 1995

In the United States Patent and Trademark Office

FAX COVER SHEET

**RECEIVED
CENTRAL FAX CENTER**

SEP 23 2004

In re Patent Application of:)	
Peter J. Fricke et al.)	Date: Sept. 23, 2004
)	
Serial No. 10/688,767)	Group Art Unit: 2824
)	
Filed: 10/15/2003)	Examiner: LUU, Pho M.
)	
Attorney Docket No. 10019337-4)	
)	
For: INTERCONNECTION STRUCTURE)	
AND METHODS)	

Received this date by the United States Patent and Trademark Office:

RESPONSE AND REQUEST FOR FILING DATE

Consisting of this cover sheet (one sheet), Transmittal Letter with fax certification and fee authorization (one sheet in duplicate), and Response (6 sheets in duplicate), a total of 15 sheets in this transmission.

Receipt directed to:
Hewlett-Packard Company
Legal Department
1000 NE Circle Blvd.
Corvallis, OR 97330
Telephone (541) 715-4197
Fax: (541) 715-8581

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P. O. Box 272400
Fort Collins, Colorado 80527-2400

PATENT APPLICATION

ATTORNEY DOCKET NO. 10019337-4

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Peter J. Fricke et al.

Confirmation No.: 1995

Application No.: 10/688,767

Examiner: LUU, Pho M.

Filing Date: 10-15-2003

Group Art Unit: 2824

Title: Interconnection Structure and Methods

Mail Stop Amendment
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL LETTER FOR RESPONSE/AMENDMENT

Sir:

Transmitted herewith is/are the following in the above-identified application:

- (X) Response/Amendment () Petition to extend time to respond
() New fee as calculated below () Supplemental Declaration
(X) No additional fee
() Other: _____ (fee \$ _____)

CLAIMS AS AMENDED BY OTHER THAN A SMALL ENTITY						
(1) FOR	(2) CLAIMS REMAINING AFTER AMENDMENT	(3) NUMBER EXTRA	(4) HIGHEST NUMBER PREVIOUSLY PAID FOR	(5) PRESENT EXTRA	(6) RATE	(7) ADDITIONAL FEES
TOTAL CLAIMS	46	MINUS	46	= 0	X \$18	\$ 0
INDEP. CLAIMS	10	MINUS	10	= 0	X \$86	\$ 0
[] FIRST PRESENTATION OF A MULTIPLE DEPENDENT CLAIM					+ \$290	\$ 0
EXTENSION FEE	1ST MONTH \$110.00	2ND MONTH \$420.00	3RD MONTH \$950.00	4TH MONTH \$1480.00		\$ 0
OTHER FEES						\$
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT						\$ 0

Charge \$ 0 to Deposit Account 08-2025. At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16, 1.17, 1.19, 1.20 and 1.21. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

Peter J. Fricke et al.

By *T.R. Touw*

Theodore R. Touw

Attorney/Agent for Applicant(s)
Reg. No. 36,702

Date: 09/23/2004

(X) hereby certify that this paper is being transmitted
to the Patent and Trademark Office facsimile
number (703) 872-9306 on 09/23/2004
Number of pages: 15

Typed Name: Theodore R. Touw

Signature: *T.R. Touw*

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P. O. Box 272400
Fort Collins, Colorado 80527-2400

PATENT APPLICATION

ATTORNEY DOCKET NO. 10019337-4

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Peter J. Fricke et al.

Confirmation No.: 1996

Application No.: 10/688,767

Examiner: LUU, Pho M.

Filing Date: 10-15-2003

Group Art Unit: 2824

Title: Interconnection Structure and Methods

Mail Stop Amendment
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL LETTER FOR RESPONSE/AMENDMENT

Sir:

Transmitted herewith is/are the following in the above-identified application:

- (X) Response/Amendment () Petition to extend time to respond
() New fee as calculated below () Supplemental Declaration
(X) No additional fee
() Other: _____ (fee \$ _____)

CLAIMS AS AMENDED BY OTHER THAN A SMALL ENTITY						
(1) FOR	(2) CLAIMS REMAINING AFTER AMENDMENT	(3) NUMBER EXTRA	(4) HIGHEST NUMBER PREVIOUSLY PAID FOR	(5) PRESENT EXTRA	(6) RATE	(7) ADDITIONAL FEES
TOTAL CLAIMS	46	MINUS	46	= 0	X \$18	\$ 0
INDEP. CLAIMS	10	MINUS	10	= 0	X \$86	\$ 0
[] FIRST PRESENTATION OF A MULTIPLE DEPENDENT CLAIM					+ \$290	\$ 0
EXTENSION FEE	1ST MONTH \$110.00	2ND MONTH \$420.00	3RD MONTH \$950.00	4TH MONTH \$1480.00		\$ 0
OTHER FEES						\$
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT						\$ 0

Charge \$ 0 to Deposit Account 08-2025. At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16, 1.17, 1.19, 1.20 and 1.21. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

Peter J. Fricke et al.

(X) hereby certify that this paper is being transmitted
to the Patent and Trademark Office facsimile
number (703) 872-9308 on 09/23/2004
Number of pages: 15

Typed Name: Theodore R. Touw

Signature: Theodore R. TouwBy Theodore R. Touw

Theodore R. Touw

Attorney/Agent for Applicant(s)
Reg. No. 36,702

Date: 09/23/2004

Attorney Docket No. 10019337-4

Fricke et al., 10/688,767

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**RECEIVED
CENTRAL FAX CENTER**

SEP 23 2004

In re Patent Application of:)	
Peter J. Fricke et al.)	Date: Sept. 22, 2004
)	
Serial No. 10/688,767)	Group Art Unit: 2824
)	
Filed 10-15-2003)	Examiner: LUU, Pho M.
)	
For: Interconnection Structure and)	
Methods)	

RESPONSE AND REQUEST FOR FILING DATE

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This paper is submitted in response to the communication from the Examiner dated 8-25-2004.

REMARKS

The Examiner's communication dated 8-25-2004 is acknowledged. The Examiner's consideration of both the preliminary amendment filed on 10-15-2003 and the Information Disclosure Statement filed on 10-15-2003 is acknowledged with thanks.

Claims 1 - 46 are pending. Claims 1 - 46 stand rejected under 35 USC § 101 as claiming the same invention as U.S. Pat. No. 6,661,691 (double patenting). No amendment is made by the present response. After this response, claims 1 - 46 remain pending.

The Examiner considered Pass et al. (U.S. Pat. No. 5,949,710) as being pertinent to applicants' disclosure and not relied upon. Following are applicants' respectfully submitted remarks discussing Pass et al. (U.S. Pat. No. 5,949,710), hereafter the "Pass '710" patent). This discussion applies equally to Pass et al. (U.S. Pat. No. 6,122,209, a division of U.S. Pat. No. 5,949,710), previously cited by the Examiner in the parent case (Appl. Ser.

Attorney Docket No. 10019337-4

Fricke et al., 10/688,767

No. 10/115,763, now U.S. Pat. No. 6,661,691). While this discussion is directed to the independent claims, it applies equally to their dependent claims, which incorporate all the limitations of their respective independent claims.

Applicants concur with the Examiner's observation that the Pass '710 patent disclosed a programmable interconnection junction programmably configured to couple or decouple a first interconnect line and a second interconnect line. However, neither the Pass '710 patent nor its continuation in U.S. Pat. No. 6,122,209 discloses applicants' invention as claimed.

Claim 1 recites, in pertinent part:

"c) at least a third set of wiring channels oriented obliquely to said first and second planes, the wiring channels of said third set being adapted for electrically coupling selected wiring channels of said first set with selected wiring channels of said second set."

Neither Pass '710 nor its continuation discloses a third set of wiring channels oriented obliquely to first and second planes.

Claim 2 recites, in pertinent part:

"c) interconnections adapted for electrically coupling cells of said first array with cells of said second array, at least some of said interconnections being disposed along axes oriented obliquely to said first and second arrays and being electrically coupled to each other."

Neither Pass '710 nor its continuation discloses interconnections disposed along axes oriented obliquely to first and second arrays.

Claim 22 recites, in pertinent part:

"b) interconnections adapted for electrically coupling cells in said first layer with cells of at least said second layer, at least some of said interconnections being disposed along axes oriented obliquely to said first and second layers and being electrically coupled to each other, whereby cells in a multiplicity of layers are selectively interconnected."

Attorney Docket No. 10019337-4

Fricke et al., 10/688,767

Neither Pass '710 nor its continuation discloses interconnections disposed along axes oriented obliquely to first and second layers.

Claim 23 recites, in pertinent part:

"c) interconnections adapted for electrically coupling cells of said first array with cells of said second array, at least some of said interconnections being disposed along axes oriented obliquely to said first and second arrays and being electrically coupled to each other, said at least some of said interconnections being further adapted to share a number of base semiconductor devices, said number being one-third to one-sixth of a quantity of base semiconductor devices used otherwise without sharing."

Neither Pass '710 nor its continuation discloses interconnections disposed along axes oriented obliquely to first and second arrays. Furthermore, neither Pass '710 nor its continuation discloses interconnections further adapted to share a number of base semiconductor devices, the number being one-third to one-sixth of a quantity of base semiconductor devices used otherwise without sharing.

Method claim 24 recites, in pertinent part:

"c) selectively coupling individual cells of said first array with individual cells of said second array by conductive interconnections disposed along at least one axis oriented obliquely to said first and second arrays."

Neither Pass '710 nor its continuation discloses a method including selectively coupling individual cells of a first array with individual cells of a second array by conductive interconnections disposed along at least one axis oriented obliquely to the first and second arrays.

Claim 42 recites, in pertinent part:

"c) interconnections disposed for connecting cells of said first array with cells of said at least one second array, at least some of said interconnections being disposed along axes oriented obliquely to said first and second arrays, each of said interconnections being selectively connected by an electrical connection to a cell of at least one of said first and second arrays, said

Attorney Docket No. 10019337-4

Fricke et al., 10/688,767

electrical connection comprising an element selected from the list consisting of an ohmic connection, a switching device, a semiconductor device, a diode, a field-effect transistor, an antifuse, and a fusible element."

Neither Pass '710 nor its continuation discloses interconnections disposed for connecting cells of a first array with cells of at least one second array, at least some of the interconnections being disposed along axes oriented obliquely to the first and second arrays.

Claim 43 recites:

"43. An integrated circuit comprising at least two arrays of cells, said cells of said arrays being selectively interconnected by interconnections adapted for electrically coupling cells of said first array with cells of said second array, at least some of said interconnections being disposed along axes oriented obliquely to said first and second arrays and being electrically coupled to each other."

Neither Pass '710 nor its continuation discloses such an integrated circuit in which at least some of the interconnections are disposed along axes oriented obliquely to the first and second arrays.

Claim 44 recites:

"44. A memory comprising at least two arrays of cells, said cells of said arrays being selectively interconnected by interconnections adapted for electrically coupling cells of said first array with cells of said second array, at least some of said interconnections being disposed along axes oriented obliquely to said first and second arrays and being electrically coupled to each other."

Neither Pass '710 nor its continuation discloses such a memory in which at least some of the interconnections are disposed along axes oriented obliquely to the first and second arrays.

Claim 45 recites:

"45. A mass storage device comprising at least one memory, said memory comprising at least two arrays of cells, said cells of said arrays being

Attorney Docket No. 10019337-4

Fricke et al., 10/688,767

selectively interconnected by interconnections adapted for electrically coupling cells of said first array with cells of said second array, at least some of said interconnections being disposed along axes oriented obliquely to said first and second arrays and being electrically coupled to each other."

Neither Pass '710 nor its continuation discloses such a mass storage device in which at least some of the interconnections are disposed along axes oriented obliquely to the first and second arrays.

Claim 46 recites, in pertinent part:

"(c) means for electrically coupling selected wiring means of said first set with selected wiring means of said second set, said means for electrically coupling being disposed along at least one axis oriented obliquely to said first and second planes."

Neither Pass '710 nor its continuation discloses means for electrically coupling selected wiring means of a first set with selected wiring means of a second set, the means for electrically coupling being disposed along at least one axis oriented obliquely to the first and second planes.

There is no suggestion anywhere in Pass '710 nor in its continuation of structures or methods corresponding to the limitations of applicants' claims. Thus, the limitations of applicants' claims are neither taught nor suggested by Pass '710 nor its continuation.

Applicants concur with the Examiner's observation that the claims of the present application are the same as the claims of the parent application, now U.S. Pat. No. 6,661,691. With entry of the present response, the purpose of the present continuation application as stated in the preliminary amendment dated 10-15-2003 will have been served.

Applicants respectfully request that a copy of the present response be inserted and made of record in the file wrapper of U.S. Pat. No. 6,661,691 in accordance with 37 CFR 1.501 as a citation by the patent owner. A copy is provided herewith for that purpose.

Attorney Docket No. 10019337-4

Fricke et al., 10/688,767

REQUEST FOR CORRECTION OF FILING DATE

Applicants respectfully reiterate the request that the filing date for the present continuation application be set to Oct. 15, 2003. All requirements for a filing date were met by the continuation papers filed on that date, as pointed out in the petition under 37 CFR 1.182 as filed March 3, 2004, to which no response has been received to date.

Respectfully submitted,

Peter J. Fricke et al., Applicants

By: 

Theodore R. Touw
Registration No. 36,702

Hewlett-Packard Company
Legal Department
1000 NE Circle Blvd.
Corvallis, OR 97330
Telephone (541) 715-4197
Fax: (541) 715-8581

Please continue to send correspondence to:

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400

Attorney Docket No. 10019337-4

Fricke et al., 10/688,767

RECEIVED
CENTRAL FAX CEN

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

SEP 23 2004

In re Patent Application of:)	
Peter J. Fricke et al.)	Date: Sept. 22, 2004
)	
Serial No. 10/688,767)	Group Art Unit: 2824
)	
Filed 10-15-2003)	Examiner: LUU, Pho M.
)	
For: Interconnection Structure and)	
Methods)	

RESPONSE AND REQUEST FOR FILING DATE

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This paper is submitted in response to the communication from the
Examiner dated 8-25-2004.

REMARKS

The Examiner's communication dated 8-25-2004 is acknowledged. The Examiner's consideration of both the preliminary amendment filed on 10-15-2003 and the Information Disclosure Statement filed on 10-15-2003 is acknowledged with thanks.

Claims 1 - 46 are pending. Claims 1 - 46 stand rejected under 35 USC § 101 as claiming the same invention as U.S. Pat. No. 6,661,691 (double patenting). No amendment is made by the present response. After this response, claims 1 - 46 remain pending.

The Examiner considered Pass et al. (U.S. Pat. No. 5,949,710) as being pertinent to applicants' disclosure and not relied upon. Following are applicants' respectfully submitted remarks discussing Pass et al. (U.S. Pat. No. 5,949,710), hereafter the "Pass '710" patent). This discussion applies equally to Pass et al. (U.S. Pat. No. 6,122,209, a division of U.S. Pat. No. 5,949,710), previously cited by the Examiner in the parent case (Appl. Ser.

Attorney Docket No. 10019337-4

Fricke et al., 10/688,767

No. 10/115,763, now U.S. Pat. No. 6,661,691). While this discussion is directed to the independent claims, it applies equally to their dependent claims, which incorporate all the limitations of their respective independent claims.

Applicants concur with the Examiner's observation that the Pass '710 patent disclosed a programmable interconnection junction programmably configured to couple or decouple a first interconnect line and a second interconnect line. However, neither the Pass '710 patent nor its continuation in U.S. Pat. No. 6,122,209 discloses applicants' invention as claimed.

Claim 1 recites, in pertinent part:

"c) at least a third set of wiring channels oriented obliquely to said first and second planes, the wiring channels of said third set being adapted for electrically coupling selected wiring channels of said first set with selected wiring channels of said second set."

Neither Pass '710 nor its continuation discloses a third set of wiring channels oriented obliquely to first and second planes.

Claim 2 recites, in pertinent part:

"c) interconnections adapted for electrically coupling cells of said first array with cells of said second array, at least some of said interconnections being disposed along axes oriented obliquely to said first and second arrays and being electrically coupled to each other."

Neither Pass '710 nor its continuation discloses interconnections disposed along axes oriented obliquely to first and second arrays.

Claim 22 recites, in pertinent part:

"b) interconnections adapted for electrically coupling cells in said first layer with cells of at least said second layer, at least some of said interconnections being disposed along axes oriented obliquely to said first and second layers and being electrically coupled to each other, whereby cells in a multiplicity of layers are selectively interconnected."

Attorney Docket No. 10019337-4

Fricke et al., 10/688,767

Neither Pass '710 nor its continuation discloses interconnections disposed along axes oriented obliquely to first and second layers.

Claim 23 recites, in pertinent part:

"c) interconnections adapted for electrically coupling cells of said first array with cells of said second array, at least some of said interconnections being disposed along axes oriented obliquely to said first and second arrays and being electrically coupled to each other, said at least some of said interconnections being further adapted to share a number of base semiconductor devices, said number being one-third to one-sixth of a quantity of base semiconductor devices used otherwise without sharing."

Neither Pass '710 nor its continuation discloses interconnections disposed along axes oriented obliquely to first and second arrays. Furthermore, neither Pass '710 nor its continuation discloses interconnections further adapted to share a number of base semiconductor devices, the number being one-third to one-sixth of a quantity of base semiconductor devices used otherwise without sharing.

Method claim 24 recites, in pertinent part:

"c) selectively coupling individual cells of said first array with individual cells of said second array by conductive interconnections disposed along at least one axis oriented obliquely to said first and second arrays."

Neither Pass '710 nor its continuation discloses a method including selectively coupling individual cells of a first array with individual cells of a second array by conductive interconnections disposed along at least one axis oriented obliquely to the first and second arrays.

Claim 42 recites, in pertinent part:

"c) interconnections disposed for connecting cells of said first array with cells of said at least one second array, at least some of said interconnections being disposed along axes oriented obliquely to said first and second arrays, each of said interconnections being selectively connected by an electrical connection to a cell of at least one of said first and second arrays, said

Attorney Docket No. 10019337-4

Fricke et al., 10/688,767

electrical connection comprising an element selected from the list consisting of an ohmic connection, a switching device, a semiconductor device, a diode, a field-effect transistor, an antifuse, and a fusible element."

Neither Pass '710 nor its continuation discloses interconnections disposed for connecting cells of a first array with cells of at least one second array, at least some of the interconnections being disposed along axes oriented obliquely to the first and second arrays.

Claim 43 recites:

"43. An integrated circuit comprising at least two arrays of cells, said cells of said arrays being selectively interconnected by interconnections adapted for electrically coupling cells of said first array with cells of said second array, at least some of said interconnections being disposed along axes oriented obliquely to said first and second arrays and being electrically coupled to each other."

Neither Pass '710 nor its continuation discloses such an integrated circuit in which at least some of the interconnections are disposed along axes oriented obliquely to the first and second arrays.

Claim 44 recites:

"44. A memory comprising at least two arrays of cells, said cells of said arrays being selectively interconnected by interconnections adapted for electrically coupling cells of said first array with cells of said second array, at least some of said interconnections being disposed along axes oriented obliquely to said first and second arrays and being electrically coupled to each other."

Neither Pass '710 nor its continuation discloses such a memory in which at least some of the interconnections are disposed along axes oriented obliquely to the first and second arrays.

Claim 45 recites:

"45. A mass storage device comprising at least one memory, said memory comprising at least two arrays of cells, said cells of said arrays being

Attorney Docket No. 10019337-4

Fricke et al., 10/688,767

selectively interconnected by interconnections adapted for electrically coupling cells of said first array with cells of said second array, at least some of said interconnections being disposed along axes oriented obliquely to said first and second arrays and being electrically coupled to each other."

Neither Pass '710 nor its continuation discloses such a mass storage device in which at least some of the interconnections are disposed along axes oriented obliquely to the first and second arrays.

Claim 46 recites, in pertinent part:

"c) means for electrically coupling selected wiring means of said first set with selected wiring means of said second set, said means for electrically coupling being disposed along at least one axis oriented obliquely to said first and second planes."

Neither Pass '710 nor its continuation discloses means for electrically coupling selected wiring means of a first set with selected wiring means of a second set, the means for electrically coupling being disposed along at least one axis oriented obliquely to the first and second planes.

There is no suggestion anywhere in Pass '710 nor in its continuation of structures or methods corresponding to the limitations of applicants' claims. Thus, the limitations of applicants' claims are neither taught nor suggested by Pass '710 nor its continuation.

Applicants concur with the Examiner's observation that the claims of the present application are the same as the claims of the parent application, now U.S. Pat. No. 6,661,691. With entry of the present response, the purpose of the present continuation application as stated in the preliminary amendment dated 10-15-2003 will have been served.

Applicants respectfully request that a copy of the present response be inserted and made of record in the file wrapper of U.S. Pat. No. 6,661,691 in accordance with 37 CFR 1.501 as a citation by the patent owner. A copy is provided herewith for that purpose.

Attorney Docket No. 10019337-4

Fricke et al., 10/688,767

REQUEST FOR CORRECTION OF FILING DATE

Applicants respectfully reiterate the request that the filing date for the present continuation application be set to Oct. 15, 2003. All requirements for a filing date were met by the continuation papers filed on that date, as pointed out in the petition under 37 CFR 1.182 as filed March 3, 2004, to which no response has been received to date.

Respectfully submitted,

Peter J. Fricke et al., Applicants

By: 

Theodore R. Touw
Registration No. 36,702

Hewlett-Packard Company
Legal Department
1000 NE Circle Blvd.
Corvallis, OR 97330
Telephone (541) 715-4197
Fax: (541) 715-8581

Please continue to send correspondence to:

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400